USER'S MANUAL

PMB-532LF

Intel® Core 2 Duo / Core Duo / Core Solo ATX Motherboard With VGA/Audio/2LAN

PMB-532LF M3

PMB-532LF Intel® Core 2 Duo /Core Duo/Core Solo

ATX Motherboard With VGA/ Sound/ 2LAN

OPERATION MANUAL

COPYRIGHT NOTICE

This operation manual is meant to assist both Embedded Computer manufacturers and end users in installing and setting up the system. The information contained in this document is subject to change without any notice.

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CE NOTICE

This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

FCC NOTICE

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

You are cautioned that any change or modifications to the equipment not expressly approve by the party responsible for compliance could void your authority to operate such equipment.

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INTRODUCTION

CHAPTER

1

This chapter gives you the information for PMB-532LF. It also outlines the System specifications.

Section includes:

- About This Manual
- System Specifications
- Safety Precautions

Experienced users can skip to chapter 2 on page 2-1 for a Quick Start.

1-1. ABOUT THIS MANUAL

Thank you for purchasing our PMB-532LF Intel® Core 2 Duo / Core Duo / Core Solo Mainboard enhanced with VGA/Sound/2LAN, which is fully PC / AT compatible. The PMB-532LF provides faster processing speed, greater expandability and can handle more tasks than before. This manual is designed to assist you how to install and set up the system. It contains four chapters. The user can apply this manual for configuration according to the following chapters:

Chapter 1 Introduction

This chapter introduces you to the background of this manual, and the specifications for this system. The final page of this chapter will indicate how to avoid damaging this board.

Chapter 2 Hardware Configuration

This chapter outlines the component locations and their functions. In the end of this chapter, you will learn how to set jumper and how to configure this card to meet your own needs.

Chapter 3 Software Utilities

This chapter contains helpful information for proper installations of the VGA utility, LAN utility, Sound utility, and Flash BIOS Update. It also describes the Watchdog-timer configuration.

Chapter 4 Award BIOS Setup

This chapter indicates you how to set up the BIOS configurations.

Appendix A Expansion Bus

This Appendix introduces you the expansion bus for PCI-E BUS, PCI BUS.

Appendix B Technical Summary

This section gives you the information about the Technical maps.

1-2. SYSTEM SPECIFICATIONS

- **CPU:**
  Intel® Core Duo up to 2.16GHz.
  Intel® Core Solo up to 1.66GHz.
  Intel® Core Duo LV up to 1.66GHz.
  Intel® Core 2 Duo up to 2.16GHz.
  1.5 ~ 2.16 GHz clock generator.
  Auto detect voltage regulator.

- **CHIPSET:**
  Intel® 945GM + ICH7R (FSB: 533/667MHz)

- **MEMORY :**
  2 x 200-pin DDR2 SO-DIMM
  Support DDR II 667 SDRAM up to 2GB.

- **CACHE :**
  Built-in CPU.

- **REAL-TIME CLOCK :**
  256-byte battery backed CMOS RAM.
  Hardware implementation to indicate century rollover.

- **BIOS :**
  Phoenix-AwardBIOS™ for plug & play function.
  4/8MB with VGA BIOS.
  Easy update 512KB flash EEPROM.
  Support S/IO Setup.

- **KEYBOARD CONNECTOR :**
  Mini DIN connector.
  Supports for AT/PS2 keyboard.

- **MOUSE CONNECTOR :**
  Mini DIN connector.
  Supports for PS/2 Mouse.

- **BUS SUPPORT :**
  1 PCI-E (16x) Slot (SDVO), 6 PCI Slots

- **DISPLAY :**
  Built-in Intel 945GM, support for CRT, LVDS, TV-Out.
  Onboard 15-pin VGA D-SUB connector, support for resolution on QXGA Monitor.

- **IDE INTERFACE :**
  One IDE ports support up to two IDE devices.
  Supports Ultra DMA 33/66/100.

- **SERIAL ATA PORT :**
  Four S-ATA connectors from ICH7R.

- **FLOPPY DISK DRIVER INTERFACE :**
  Support one Floppy Disk Drives, 3.5" and 5.25" (360K / 720K / 1.2M / 1.44M / 2.88M).

- **USB CONNECTOR :**
  Support up to eight USB 2.0 ports.

- **LAN ADAPTER :**
  Dual ports
  LAN1: Intel® 82573V (10/100/1000 Mbps)
  LAN2: Intel® 82573V (10/100/1000 Mbps)
  Support wake-on-LAN function.

- **SERIAL PORT :**
  Four high speed 16550 Compatible UARTs with Send / Receive 16 Byte FIFOs; COM1/3/4:RS-232; COM2: RS-232/422/485
  MIDI Compatible
  Programmable Baud Rate Generator

- **SOUND :**
  Realtek ALC655 (AC'97 Codec).
  Fully Compliant AC'97 Analog I/O Component
  16-Bit Stereo Full-Duplex Codec
  Four Analog Line-level Stereo Inputs for Connection.
  High Quality CD Input with Ground Sense
  Stereo Line-Level Output
  Interface: Line-In, Line-Out, Microphone, and CD Audio-In.

- **HARDWARE MONITORING FUNCTION :**
  Monitor Voltage, CPU temperature, & Cooling fan.
  If CPU Temperature is over setting, the buzzer will send out a warming (only under DOS system).

- **IRDA PORT :**
  5-pin Infrared port, support IrDA v1.0 SIR protocol

- **PARALLEL PORT :**
  SPP / ECP / EPP Function.
  1 port, bi-directional parallel port.

- **GREEN FUNCTION :**
  Controlled by hardware and software.

- **LED INDICATOR :**
  System power
  Hard Disk access
  LAN LED indicator

- **DMA CONTROLLER :**
  82C37 x 2

- **DMA CHANNELS :**
  7

- **INTERRUPT CONTROLLERS :**
  82C59 x 2

- **INTERRUPT LEVELS :**
  15

- **OPERATING TEMPERATURE :**
  0 to 60°C.

- **BOARD DIMENSIONS :**
  305mm x 244mm, 12” x9.61”

- **BOARD NET WEIGHT :**
  810 gram.

1-3. SAFETY PRECAUTIONS

Follow the messages below to avoid your systems from damage:

1. Keep your system away from static electricity on all occasions.

2. Prevent electric shock. Don‘t touch any components of this card when the card is power-on. Always disconnect power when the system is not in use.

3. Disconnect power when you change any hardware devices. For instance, when you connect a jumper or install any cards, a surge of power may damage the electronic components or the whole system.

HARDWARE CONFIGURATION

CHAPTER

2

*** QUICK START ***

Helpful information describes the jumper & connector settings, and component locations.

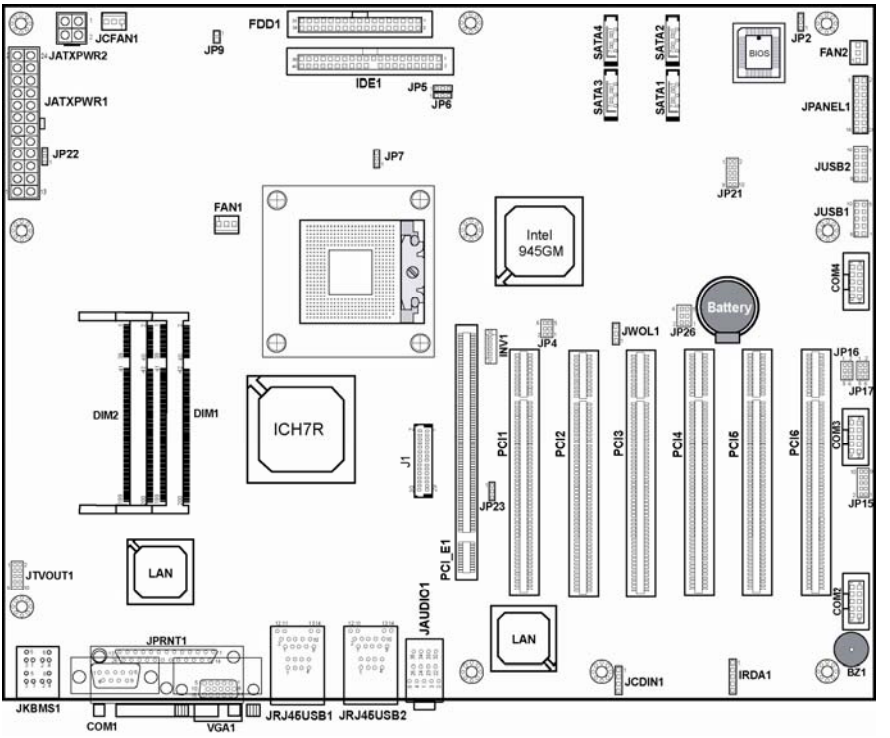
Section includes:

- Jumper & Connector Quick Reference Table
- Component Locations
- Configuration and Jumper settings
- Connector's Pin Assignments

2-1. JUMPER & CONNECTOR QUICK REFERENCE TABLE

COM Port Connector …….	COM1,COM2,COM3,COM4
COM3/4 Port RI/Voltage Selection ……...	JP16,JP17
RS232/422/485 (COM2) Selection ……	JP15
Keyboard/Mouse Connector …….	JKBMS1
Reset Connector ……	JPANEL1 (13，15)
Hard Disk Drive LED Connector …….	JPANEL1 (09，11)
Power Button ……..	JPANEL1 (14，16)
External Speaker Connector ……	JPANEL1 (1，3，5，7)
PLED Connector …….	JPANEL1 (08，10，12)
External SMI Connector ……..	JPANEL1 (02，04)
Clear CMOS Data Selection ……	JP2
CPU Fan Connector ……	FAN1
System Fan Connector ……	FAN2，JCFAN1
Hard Disk Drive Connector ……	IDE1
VGA Connector ……..	VGA1
Serial ATA Connector ……	SATA1,SATA2,SATA3,SATA4
Floppy Disk Drive Connector …….	FDD1
Printer Connector ……	JPRNT1
Universal Serial Bus Connector ……..	JUSB1，JUSB2
USB & LAN Connector ……..	JRJ45USB1,JRJ45USB2
IRDA Connector …….	IRDA1
ATX Power Connector ……	JATXPWR1
Sound Connector ……..	JAUDIO1
CD Audio-In Connector ……..	JCDIN1
LVDS Connector ……..	J1
Inverter Connector ……	J4
LVDS Panel Voltage Selection …….	JP4
FSB Frequency Selection ……..	JP5，JP6，JP7
Power State Selection ……..…….	JP22
Reset/NMI Watchdog Selection ……	JP21
Single PCI Slot / PICMG 1.0 Selection ……	JP23
TV Out Connector …….	JTVOUT1

2-2. COMPONENT LOCATIONS



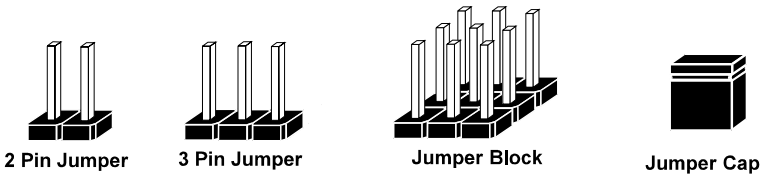
PMB-532LF Connector, Jumper and Component locations

2-3. HOW TO SET THE JUMPERS

You can configure your board by setting jumpers. Jumper is consists of two or three metal pins with a plastic base mounted on the card, and by using a small plastic "cap", Also known as the jumper cap (with a metal contact inside), you are able to connect the pins. So you can set-up your hardware configuration by "open" or "close" pins.

The jumper can be combined into sets that called jumper blocks. When the jumpers are all in the block, you have to put them together to set up the hardware configuration. The figure below shows how this looks like.

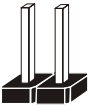
JUMPERS AND CAPS



If a jumper has three pins (for examples, labelled PIN1, PIN2, and PIN3), You can connect PIN1 & PIN2 to create one setting by shorting. You can either connect PIN2 & PIN3 to create another setting. The same jumper diagrams are applied all through this manual. The figure below shows what the manual diagrams look and what they represent.

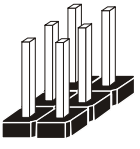
JUMPER DIAGRAMS

Jumper Cap looks like this

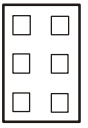


2 pin Jumper looks like this

3 pin Jumper looks like this

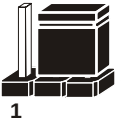


Jumper Block looks like this



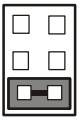
JUMPER SETTINGS

2 pin Jumper close(enabled) Looks like this



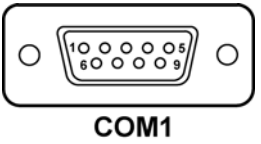
3 pin Jumper 2-3 pin close(enabled) Looks like this

Jumper Block 1-2 pin close(enabled) Looks like this



2-4. COM PORT CONNECTOR

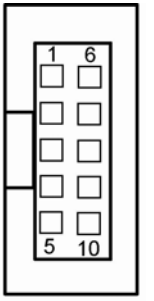
COM1 : COM1 Connector
COM1 is fixed as RS-232.
The pin assignment is as follows :



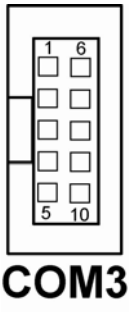
PIN	ASSIGNMENT
1	DCD1
2	RX1
3	TX1
4	DTR1
5	GND
6	DSR1
7	RTS1
8	CTS1
9	RI1

COM2 : COM2 Connector
The COM2 is selectable as RS-232/422/485.
The pin assignment is as follows :

PIN	ASSIGNMENT		
	RS-232	**RS-422**	**RS-485**
1	DCD2	TX-	TX-
2	RX2	TX+	TX+
3	TX2	RX+	RX+
4	DTR2	RX-	RX-
5	GND	GND	GND
6	DSR2	RTS-	GND
7	RTS2	RTS+	GND
8	CTS2	CTS+	GND
9	RI2	CTS-	GND



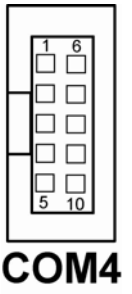
COM3 : COM3 Connector
COM3 is fixed as RS-232.
The pin assignment is as follows :



PIN	ASSIGNMENT
1	DCD3
2	RX3
3	TX3
4	DTR3
5	GND
6	DSR3
7	RTS3
8	CTS3
9	RI3

📖 COM3's pin 9 is selectable for RI, +5V or +12V. For more information, please refer to our "2-5 COM RI and Voltage Selection".

COM4 : COM4 Connector
COM4 is fixed as RS-232.
The pin assignment is as follows :

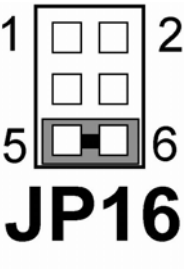
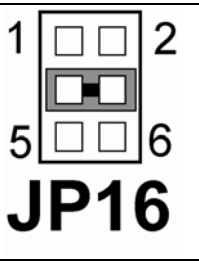
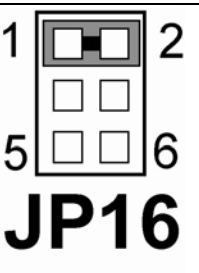


PIN	ASSIGNMENT
1	DCD4
2	RX4
3	TX4
4	DTR4
5	GND
6	DSR4
7	RTS4
8	CTS4
9	RI4

📖 COM4's pin 9 is selectable for RI, +5V or +12V. For more information, please refer to our "2-5 COM RI and Voltage Selection".

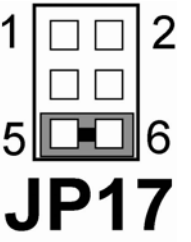
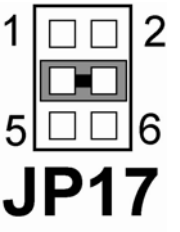
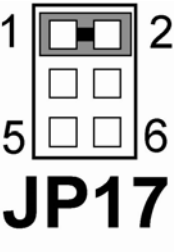
2-5. COM3/4 RI & VOLTAGE SELECTION

JP16 : COM3 RI & Voltage Selection
The selections are as follows:

COM	SELECTION	JUMPER SETTINGS	JUMPER ILLUSTRATION
COM3	5V	5-6	
	12V	3-4	
	RI	1-2	

***Manufacturing Default -- RI.

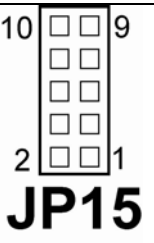
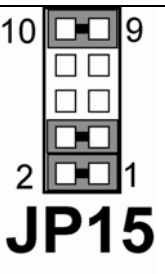
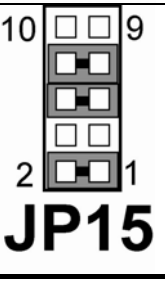
JP17 : COM4 RI & Voltage Selection
The selections are as follows:

COM	SELECTION	JUMPER SETTINGS	JUMPER ILLUSTRATION
COM4	5V	5-6	
	12V	3-4	
	RI	1-2	

***Manufacturing Default -- RI.

2-6. RS232/422/485 (COM2) SELECTION

JP15 : RS-232/422/485 (COM2) Selection
This connector is used to set the COM2 function.
The jumper settings are as follows :

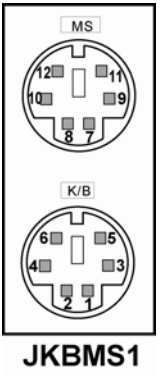
COM 2 Function	Jumper Settings (pin closed)	Jumper Illustrations
RS-232	All Open	
RS-422	1-2, 3-4, 9-10	
RS-485	1-2, 5-6, 7-8	

*** Manufacturing default -- RS-232.

2-7. KEYBOARD AND PS/2 MOUSE CONNECTOR

JKBMS1 : Keyboard and PS/2 Mouse Connector
The pin assignments are as follows :

PIN	ASSIGNMENT
1	KBDATA
2	NC
3	GND
4	5VSB
5	KBCLK
6	NC
7	MSDATA
8	NC
9	GND
10	5VSB
11	MSCLK
12	NC

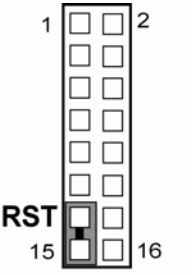


JKBMS1

2-8. RESET CONNECTOR

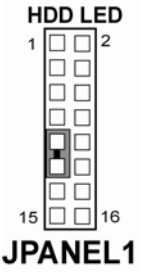
JPANEL1 (13, 15) : Reset Connector.
The pin assignment is as follows :

PIN	ASSIGNMENT
13	GND
15	RST_BTN



JPANEL1

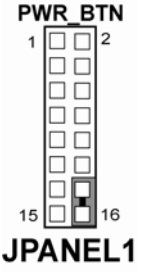
2-9. HARD DISK DRIVE LED CONNECTOR



JPANEL1 (9, 11) : Hard Disk Drive LED Connector
The pin assignment is as follows :

PIN	ASSIGNMENT
9	HD_LED+
11	HD_LED-

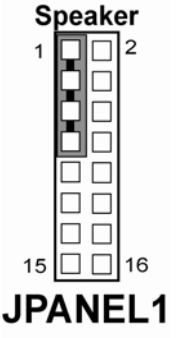
2-10. ATX POWER BUTTON



JPANEL1 (14, 16) : ATX Power Button
The pin assignment is as follows :

PIN	ASSIGNMENT
14	PW_BN1
16	PW_BN2

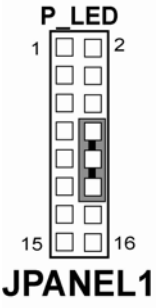
2-11. EXTERNAL SPEAKER CONNECTOR



JPANEL1 (1, 3, 5, 7) : External Speaker Connector
The pin assignment is as follows :

PIN	ASSIGNMENT
1	P_SPK
3	NC
5	NC
7	VCC

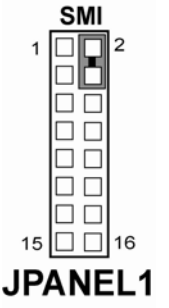
2-12. PLED CONNECTOR



JPANEL1 (8, 10, 12) : PLED Connector
The pin assignment is as follows:

PIN	ASSIGNMENT
8	PW_LED+
10	PW_LED+
12	PW_LED-

2-13. EXTERNAL SMI CONNECTOR



JPANEL1 (2, 4) : External SMI Connector
The pin assignment is as follows:

PIN	ASSIGNMENT
2	P_ESMI
4	GND

2-14. CLEAR CMOS DATA SELECTION

JP2 : Clear CMOS Data Selection
The selections are as follows :

FUNCTION	JUMPER SETTING (pin closed)	JUMPER ILLUSTRATION
Normal	1-2	
Clear CMOS	2-3	

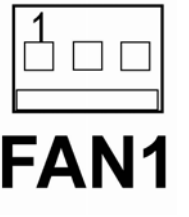
*** Manufacturing Default -- Normal.

Note: To clear CMOS data, user must power-off the computer and set the jumper to "Clear CMOS" as illustrated above. After five to six seconds, set the jumper back to "Normal" and power-on the computer.

2-15. CPU FAN CONNECTOR

FAN1 : CPU Fan connector
The pin assignment is as follows:

PIN	ASSIGNMENT
1	LPC1_FANPWM1
2	+12V
3	LPC1_FANIO1



2-16. SYSTEM FAN CONNECTOR

FAN2：System Fan connector
The pin assignment is as follows：

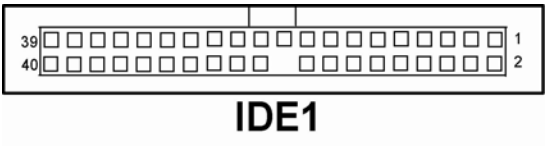
PIN	ASSIGNMENT
1	LPC1_FANPWM2
2	+12V
3	LPC1_FANIO1

JCFAN1：System Fan connector
The pin assignment is as follows：

PIN	ASSIGNMENT
1	GND
2	+12V
3	NC

2-17. HARD DISK DRIVE CONNECTOR

The B532LF possesses one HDD connector: IDE1.

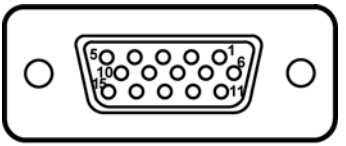


IDE1: Hard Disk Drive Connector
The pin assignments are as follows:

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	IDERST	2	GND
3	PDD7	4	PDD8
5	PDD6	6	PDD9
7	PDD5	8	PDD10
9	PDD4	10	PDD11
11	PDD3	12	PDD12
13	PDD2	14	PDD13
15	PDD1	16	PDD14
17	PDD0	18	PDD15
19	GND	20	NC
21	PDREQ	22	GND
23	PDIOWJ	24	GND
25	PDIORJ	26	GND
27	PIORDY	28	PULL LOW
29	PDDACKJ	30	GND
31	IRQ14S	32	NC
33	PDA1	34	P66 DETECT
35	PDA0	36	PDA2
37	PDCSJ1	38	PDCSJ3
39	IDEACTPJ	40	GND

2-18. VGA CONNECTOR

VGA1: VGA Connector
The pin assignments are as follows:



VGA1

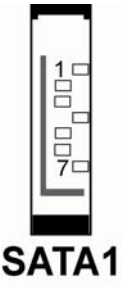
PIN	ASSIGNMENT
1	RED
2	GREEN
3	BLUE
4	NC
5	GND
6	GND
7	GND
8	GND
9	VCC
10	GND
11	NC
12	VGA IIC DATA
13	HSYNC
14	VSYNC
15	VGA IIC CLK

2-19. SERIAL ATA CONNECTOR

SATA1~SATA4: The PMB-532LF possesses four Serial ATA Connector, SATA1~SATA4. The pin assignments are as follows:

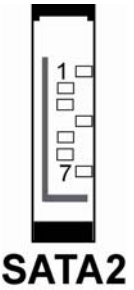
SATA1：SATA Connector
The pin assignments are as follows：

PIN	ASSIGNMENT
1	GND
2	SATA_TXPC0
3	SATA_TXNC0
4	GND
5	SATA_RXNC0
6	SATA_RXPC0
7	GND



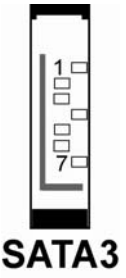
SATA2：SATA Connector
The pin assignments are as follows：

PIN	ASSIGNMENT
1	GND
2	SATA_TXPC1
3	SATA_TXNC1
4	GND
5	SATA_RXNC1
6	SATA_RXPC1
7	GND



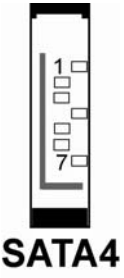
SATA3：SATA Connector
The pin assignments are as follows：

PIN	ASSIGNMENT
1	GND
2	SATA_TXPC2
3	SATA_TXNC2
4	GND
5	SATA_RXNC2
6	SATA_RXPC2
7	GND



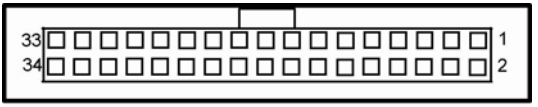
SATA4：SATA Connector
The pin assignments are as follows：

PIN	ASSIGNMENT
1	GND
2	SATA_TXPC3
3	SATA_TXNC3
4	GND
5	SATA_RXNC3
6	SATA_RXPC3
7	GND



2-20. FLOPPY DISK DRIVE CONNECTOR

FDD1：Floppy Disk Drive Connector
The pin assignments are as follows：

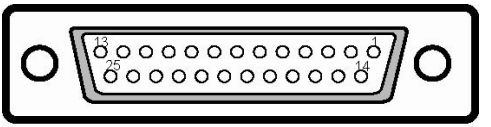


FDD1

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	GND	2	RWCJ
3	GND	4	NC
5	NC	6	NC
7	GND	8	INDEX
9	GND	10	MOAJ
11	GND	12	NC
13	GND	14	DSAJ
15	GND	16	NC
17	GND	18	DIRJ
19	GND	20	STEPJ
21	GND	22	WDJ
23	GND	24	WEJ
25	GND	26	TRAK0
27	GND	28	WPJ
29	GND	30	RDATA
31	GND	32	HEADJ
33	GND	34	DSKCHG

2-21. PRINTER CONNECTOR

JPRNT1: Printer Connector
The pin assignments are as follows :

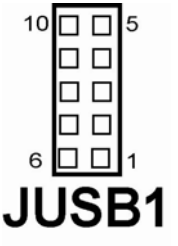


JPRNT1

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	RSTBJ	14	AFDJ
2	RPD0	15	ERRJ
3	RPD1	16	PAR_INITJ
4	RPD2	17	SLINJ
5	RPD3	18	GND
6	RPD4	19	GND
7	RPD5	20	GND
8	RPD6	21	GND
9	RPD7	22	GND
10	ACKJ	23	GND
11	BUSY	24	GND
12	PE	25	GND
13	SLCT		

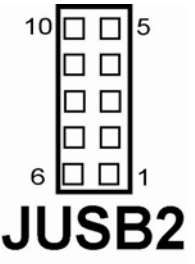
2-22. UNIVERSAL SERIAL BUS CONNECTOR

JUSB1：Universal Serial Bus Connector
The pin assignments are as follows：



PIN	ASSIGNMENT
1	VCCUSB4
2	USBP4N
3	USBP4P
4	GND
5	NC
6	VCCUSB5
7	USBP5N
8	USBP5P
9	GND
10	NC

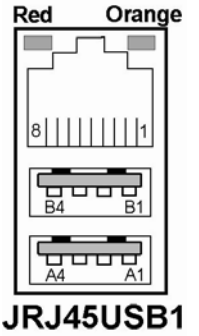
JUSB2：Universal Serial Bus Connector
The pin assignments are as follows：



PIN	ASSIGNMENT
1	VCCUSB6
2	USBP6N
3	USBP6P
4	GND
5	NC
6	VCCUSB7
7	USBP7N
8	USBP7P
9	GND
10	NC

2-23. USB&LAN CONNECTOR

JRJ45USB1：USB & LAN Connector
The pin assignments are as follows：



JRJ45USB1

LAN Signal ：

PIN	ASSIGNMENT
1	VCC_LAN1
2	LAN1_MDI_0P
3	LAN1_MDI_0N
4	LAN1_MDI_1P
5	LAN1_MDI_1N
6	LAN1_MDI_2P
7	LAN1_MDI_2N
8	LAN1_MDI_3P
9	LAN1_MDI_3N
10	COM_LAN1

LAN LED Indicator:
Left Side LED

RED Color On	Giga LAN Speed Indicator
Off	No LAN switch/ hub connected.

Right Side LED

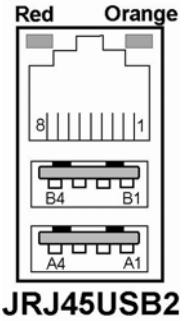
Orange Color Blinking	LAN Message Active
Off	No LAN Message Active

USB Signal：

PIN	ASSIGNMENT
A1	VCCUSB1
A2	USBP1N
A3	USBP1P
A4	GND
B1	VCCUSB0
B2	USBP0N
B3	USBP0P
B4	GND

JRJ45USB2：USB & LAN Connector

The pin assignments are as follows：



JRJ45USB2

LAN Signal ：

PIN	ASSIGNMENT
1	VCC_LAN2
2	LAN2_MDI_0P
3	LAN2_MDI_0N
4	LAN2_MDI_1P
5	LAN2_MDI_1N
6	LAN2_MDI_2P
7	LAN2_MDI_2N
8	LAN2_MDI_3P
9	LAN2_MDI_3N
10	COM_LAN2

LAN LED Indicator:

Left Side LED

RED Color On	Giga LAN Speed Indicator
Off	No LAN switch/ hub connected.

Right Side LED

Orange Color Blinking	LAN Message Active
Off	No LAN Message Active

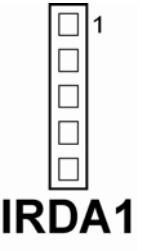
USB Signal：

PIN	ASSIGNMENT
A1	VCCUSB3
A2	USBP3N
A3	USBP3P
A4	GND
B1	VCCUSB2
B2	USBP2N
B3	USBP2P
B4	GND

2-24. IRDA CONNECTOR

IRDA1: IrDA (Infrared) Connector
The pin assignments are as follows:

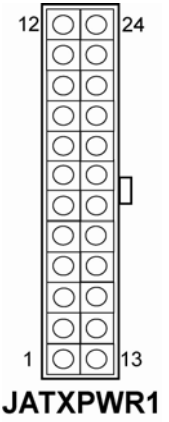
PIN	ASSIGNMENT
1	+5V
2	NC
3	IRRX
4	GND
5	IRTX



2-25. ATX POWER CONNECTOR

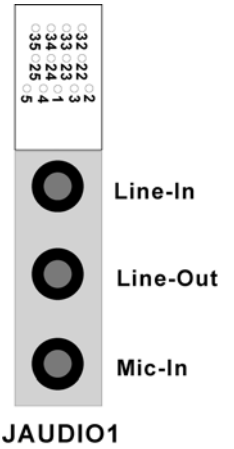
JATXPWR1：ATX 12V Connector
The pin assignments are as follows：

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	+3.3V	13	+3.3V
2	+3.3V	14	-12V
3	GND	15	GND
4	+5V	16	PS-ON
5	GND	17	GND
6	+5V	18	GND
7	GND	19	GND
8	POK	20	-5V
9	5VSB	21	+5V
10	+12V	22	+5V
11	+12V	23	+5V
12	+3.3V	24	GND



2-26. SOUND CONNECTOR

JAUDIO1 : Sound Connector
The pin assignments are as follows：



Line-In

PIN	ASSIGNMENT
32	LINE_L
33	GND
34	GND
35	LINE_R

Line-Out

PIN	ASSIGNMENT
22	SPK_L
23	NC
24	NC
25	SPK_R

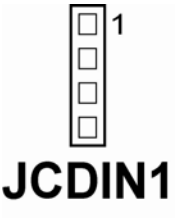
Mic-In

PIN	ASSIGNMENT
1	GND
2	MIC_IN1
3	NC
4	NC
5	MIC_IN2

2-27. AUDIO CD-IN CONNECTOR

JCDIN1：Audio CD-In Connector
The pin assignments are as follows：

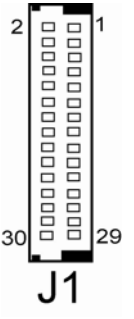
PIN	ASSIGNMENT
1	CD_L
2	CDGND
3	CDGND
4	CD_R



2-28. LVDS CONNECTOR

J1：LVDS CONNECTOR
The pin assignments are as follows：

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	LCD_VCC	2	GND
3	ZCM	4	ZCP
5	GND	6	Z2M
7	Z2P	8	GND
9	Z1M	10	Z1P
11	Z3P	12	Z3M
13	Z0P	14	Z0M
15	GND	16	YCP
17	YCM	18	GND
19	Y2P	20	Y2M
21	GND	22	Y1P
23	Y1M	24	GND
25	Y0P	26	Y0M
27	Y3P	28	Y3M
29	LCD_VCC	30	LCD_VCC



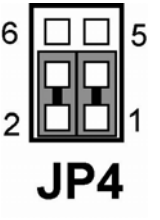
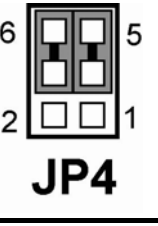
2-29. INVERTER CONNECTOR

J4：LVDS Panel Voltage Selection.
The pin assignments are as follows：

PIN	ASSIGNMENT
1	+12V
2	GND
3	VCC
4	GND
5	ENABKL (Inverter Backlight ON/OFF Control Signal)

2-30. LVDS PANEL VOLTAGE SELECTION

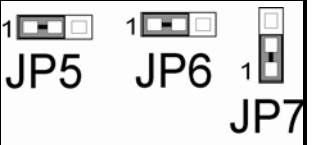
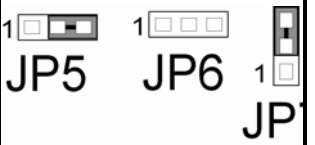
JP4：LVDS Panel Voltage Selection.
The pin assignments are as follows：

SELECTION	JUMPER SETTING (pin closed)	JUMPER ILLUSTRATION
LVDS_VCC3	1-3 2-4	
LVDS_VCC5	3-5 4-6	

*** Manufacturing Default – LVDS_VCC3.

2-31. FSB FREQUENCY SELECTION

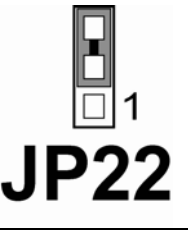
JP5,JP6,JP7：FSB Frequency Selections.
The pin assignments are as follows：

SELECTION	JUMPER SETTING (pin closed)			JUMPER ILLUSTRATION
	JP5	JP6	JP7	
CPU Driven	1-2	1-2	1-2	
133 MHz	2-3	2-3	2-3	
166 MHz	2-3	open	2-3	

*** Manufacturing Default – 166 MHz.

2-32. POWER STATE SELECTION

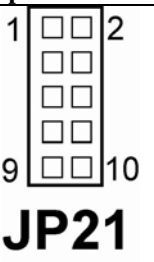
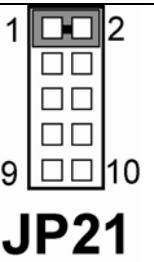
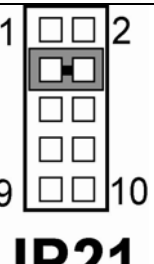
JP22：Power State Selections.
The pin assignments are as follows：

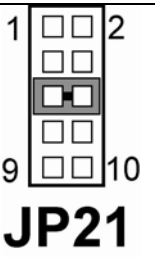
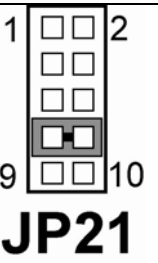
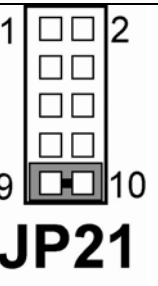
Selections	Jumper Setting	Jumper Illustrations
ATX	1-2	
AT	2-3	

*** Manufacturing Default – ATX.

2-33. RESET/ NMI SELECTIONS

JP21：Power State Selections.
The pin assignments are as follows：

Selections	Jumper Setting	Jumper Illustration
ATX	1-2 OPEN	
AT	1-2 CLOSE	
RESET	3-4 CLOSE	

NMI	5-6 CLOSE	
CLEAR WDG	7-8 CLOSE	
GPIO For Customer Application	9-10 CLOSE	

*** Manufacturing Default –.ATX

2-34. SINGLE PCI SLOT / PICMG 1.0 SELECTIONS

JP23：Single PCI Slot / PICMG 1.0 SELECTIONS.
The pin assignments are as follows：

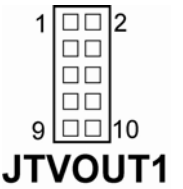
Selections	Jumper Setting	Jumper Illustration
PCI (IDSEL)	1-2	
Rise Card (PICMG 1.0)	2-3	

*** Manufacturing Default –. PCI

2-35. TV OUT CONNECTOR

JTVOUT1：TV OUT CONNECTOR
The pin assignments are as follows：

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	DACB_L	2	DACA_L
3	GND	4	GND
5	DACC_L	6	NC
7	DLINE1	8	DLINE2
9	DLINE3	10	NC



SOFTWARE UTILITIES

CHAPTER

3

This chapter comprises the detailed information of VGA driver, LAN driver, and Flash BIOS update. It also describes how to install the watchdog timer configuration.

Section includes:

- VGA Driver Utility
- Flash BIOS Update
- LAN Driver Utility
- Sound Driver Utility
- Intel® Chipset Software Installation Utility
- USB2.0 Chipset Software Installation Utility
- Watchdog Timer Configuration

3-1. INTRODUCTION

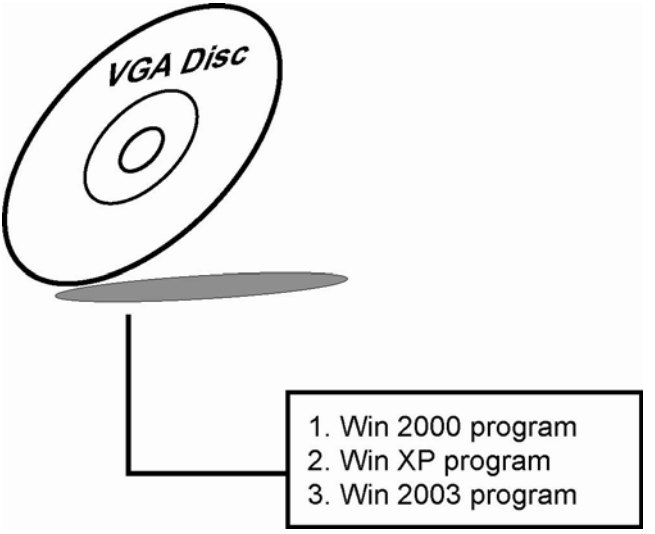
Enclosed with our PMB-532LF package is our driver utility, which may comes in a form of a CD ROM disc or floppy diskettes. For CD ROM disc user, you will only need some of the files contained in the CD ROM disc, please kindly refer to the following chart:

Filename (Assume that CD ROM drive is D:)	**Purpose**
D:\Driver\VGA	Intel 945GM For VGA driver installation
D:\Driver\FLASH	For BIOS update utility
D:\Driver\LAN	For LAN Driver installation
D:\Driver\Sound	Realtel ALC655 AC97 For Sound driver installation
D:\Driver\UTILITY	Intel® Chipset Software Installation Utility For Win 2000, XP,Server2003
D:\Driver\USB 2.0	USB 2.0 Software Installation Utility For Win 2000, XP
D:\Driver\RAID	For ICH7-R S-ATA RAID For Win 2000, XP, 2003

🔔 User should remember to install the Utility right after the OS fully installed.

3-2. VGA DRIVER UTILITY

The VGA interface embedded with our PMB-532LF can support a wide range of display. You can display CRT, PCI-E (SDVO) simultaneously with the same mode.



3-2-1. Installation of VGA Driver:

To install the VGA Driver, simply follow the following steps:

1. Place insert the Utility Disk into Floppy Disk Drive A/B or CD ROM drive.
2. Under Windows 2000/XP/2003 system, go to the directory where VGA driver is located.
3. Click **Setup.exe** file for VGA driver installation.
4. Follow the instructions on the screen to complete the installation.
5. Once installation is completed, shut down the system and restart in order for the changes to take effect.

3-3. FLASH BIOS UPDATE

3-3-1. System BIOS Update:

Users of PMB-532LF can use the program "Awdflash.exe" contained in the Utility Disk for system BIOS and VGA BIOS update.

3-3-2. To update VGA BIOS for LCD Flat Panel Display:

As PMB-532LF user, you have to update the VGA BIOS for your specific LCD flat panel you are going to use. For doing this, you need two files. One is the "Awdflash.exe" file and the other is the VGA BIOS for ATI Rage Mobility M6 file for LCD panel display. Both file must be provided by the vendor or manufacturer. When you get these two files ready, follow the following steps for updating your VGA BIOS:

1. Install "Awdflash.exe" from Utility Disk to Drive C.
2. Insert the VGA BIOS file you have obtained from the vendor. Type the path to Awdflash.exe and execute the VGA BIOS update with file B532xxxx.bin
3. C:\UTIL\AWDFLASH>AWDFLASH H15bxxxx.bin
4. The screen will display as the table fount on the next page:

FLASH MEMORY WRITER v7.XX (C) Award Software 2001 All Rights Reserved
Flash Type – SST 49LF004A /3.3V File Name to Program: B532xxxx.bin Checksum: XXXXX
Error Message: Do You Want To Save BIOS (Y/N)

If you want to save up the original BIOS, enter "Y" and press < Enter >. If you choose "N", the following table will appear on screen.

FLASH MEMORY WRITER v7.XX (C) Award Software 2001 All Rights Reserved
Flash Type – SST 49LF004A /3.3V File Name to Program: B532xxxx.bin Checksum: XXXXX
Error Message : Are You Sure To Program (Y/N)

Select "Y", and the BIOS will be renewed. When you are refreshing the BIOS, do not turn off or reset the system, or you will damage the BIOS. After you have completed all the programming, the screen displays the table below:

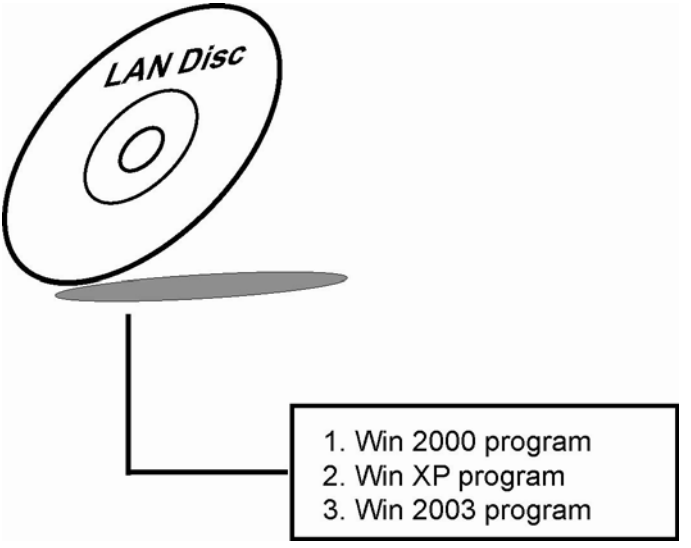
FLASH MEMORY WRITER v7.XX (C) Award Software 2001 All Rights Reserved
Flash Type – SST 49LF004A /3.3V File Name to Program: B532xxxx.bin Checksum: XXXXX Reset System or Power off to accomplish update process!
F1: Reset F10: Exit

Please reset or power off the system, and then the Flash BIOS is fully implemented.

3-4. LAN DRIVER UTILITY

3-4-1. Introduction

PMB-532LF is enhanced with LAN function that can support various network adapters. Installation programs for LAN drivers are listed as follows:

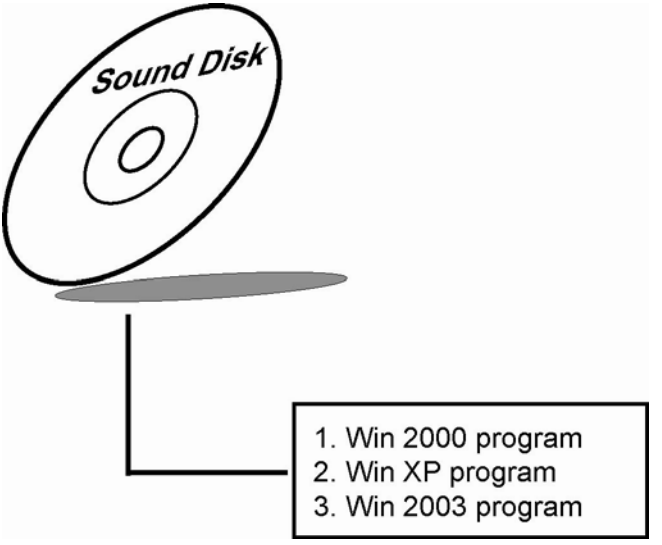


For more details on Installation procedure, please refer to Readme.txt file found on LAN DRIVER UTILITY.

3-5. SOUND DRIVER UTILITY

3-5-1. Introduction

The Realtek ALC655 sound function enhanced in this system is fully compatible with Windows 2000 and Windows XP. Below, you will find the content of the Sound driver :



3-5-2. Installation Procedure for Windows 2000/XP

1. From the task bar, click on Start, and then Run.
2. In the Run dialog box, type D:\Sound\path\setup, where "D:\Sound\pathname" refers to the full path to the source files.
3. Click on the OK button or press the ENTER key.
4. Click on the "Next" and OK prompts as they appear.
5. Reboot the system to complete the driver installation.

3-6. INTEL® CHIPSET SOFTWARE INSTALLATION UTILITY

3-6-1. Introduction

The Intel® Chipset Software Installation Utility installs to the target system the Windows* INF files that outline to the operating system how the chipset components will be configured. This is needed for the proper functioning of the following features:

- Core PCI and ISAPNP Services
- AGP Support
- IDE/ATA33/ATA66/ATA100 Storage Support
- USB Support
- Identification of Intel® Chipset Components in Device Manager

3-6-2. Installation of Utility for Windows 2000/XP/2003

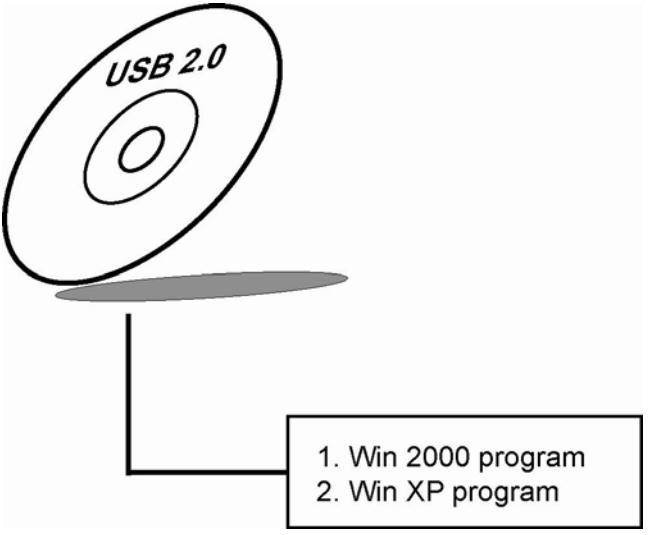
The Utility Pack is to be installed only for Windows 2000 and XP program.
It should be installed right after the OS installation, kindly follow the following steps:

1. Place insert the Utility Disk into Floppy Disk Drive A/B or CD ROM drive.
2. Under Windows 2000/XP/2003 system, go to the directory where Utility Disc is located.
3. Click **Setup.exe** file for utility installation.
4. Follow the instructions on the screen to complete the installation.
5. Once installation is completed, shut down the system and restart in order for the changes to take effect.

3-7. USB2.0 SOFTWARE INSTALLATION UTILITY

3-7-1. Installation of Utility for Windows 2000/XP

Intel USB 2.0 Enhanced Host Controller driver can only be used on Windows 2000 and Windows XP on Intel Desktop boards. It should be installed right after the OS installation, kindly follow the following steps:



1. Place insert the Utility Disk into Floppy Disk Drive A/B or CD ROM drive.
2. Under Windows 2000, and XP system, go to the directory where Utility Disc is located.
3. Start the "System" wizard in control panel. (Click Start/Settings/Control Panel).
4. Select "Hardware" and click "Device Manager " button.
5. Double Click "USB Root Hub".
6. Select "Driver".
7. Click "Install" to install the driver.
8. Follow the instructions on the screen to complete the installation.
9. Click "Finish" after the driver installation is complete.

3-8. WATCHDOG TIMER CONFIGURATION

The Watch-dog Timer has a programmable time-out ranging from 1 to 255 minutes with one minute resolution, or 1 to 255 seconds with 1 second resolution. The units of the WDT timeout value are selected via bit[7] of the WDT_TIMEOUT register, which is located on I/O Port address 0x865h. The WDT time-out value is set through the WDT_VAL Runtime register, which is located on I/O Port address 0x866h. Setting the WDT_VAL register to 0x00 disables the WDT function Setting the WDT_VAL to any other non-zero value will cause the WDT to reload and begin counting down from the value loaded. Setting the Register located on I/O address 0x867h and 0x868h as 00h to finish timer configuration.

Example Program

```
Example Code:
(1)
;------------------------------------------------------
;Enable Watch-Dog Timer
;------------------------------------------------------
                mov     dx,(800h+65h)   ;Time counting Unit minute or second
                mov     al,80h          ;al = 00h : minute, or al = 80h :
second
          out           dx,al

                mov     dx,(800h+66h)
                mov     al,20           ;al=Watch Dog Timer Second(s) , 20
sec(s)
          out           dx,al

          mov           dx,(800h+67h)
          mov           al,00h
                out     dx,al


                mov     dx,(800h+68h)   ;Start Watch Dog Timer
          mov           al,00h
          out           dx,al

(2)
;------------------------------------------------------
;Disable Watch-Dog Timer
;------------------------------------------------------
                mov     dx,(800h+66h)   ;Disabled Watch Dog
          mov           al,00h
          out           dx,al

          mov           dx,(800h+67h)
          mov           al,00h
          out           dx,al

                mov     dx,(800h+68h)   ;Clear Status Bit
          mov           al,00h
          out           dx,al
```

AWARD BIOS SETUP

CHAPTER 4

This chapter shows how to set up the Award BIOS.

Section includes:

- Introduction
- Entering Setup
- The Standard CMOS Features
- The Advanced BIOS Features
- The Advanced Chipset Features
- Integrated Peripherals
- Power Management Setup
- PNP/PCI Configuration
- PC Health Status
- Load Fail-Safe Defaults
- Load Optimized Defaults
- Password Setting
- Save and Exit Setup
- Exit Without Saving

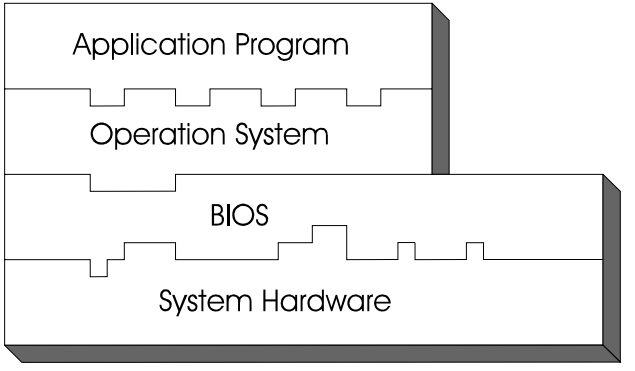
4-1. INTRODUCTION

This chapter will show you the function of the BIOS in managing the features of your system. The PMB-532LF Intel Core 2 Duo / Core Duo / Core Solo ATX Motherboard is equipped with the BIOS for system chipset from Phoenix -Award Software Inc. This page briefly explains the function of the BIOS in managing the special features of your system. The following pages describe how to use the BIOS for system chipset Setup menu.

Your application programs (such as word processing, spreadsheets, and games) rely on an operating system such as DOS or OS/2 to manage such things as keyboard, monitor, disk drives, and memory.

The operating system relies on the BIOS (Basic Input and Output system), a program stored on a ROM (Read-only Memory) chip, to initialize and configure your computer's hardware. As the interface between the hardware and the operating system, the BIOS enables you to make basic changes to your system's hardware without having to write a new operating system.

The following diagram illustrates the interlocking relationships between the system hardware, BIOS, operating system, and application program:



4-2. ENTERING SETUP

When the system is powered on, the BIOS will enter the Power-On Self Test (POST) routines and the following message will appear on the lower screen:

PRESS <DEL> TO ENTER SETUP, ESC TO SKIP MEMORY TEST

As long as this message is present on the screen you may press the <Del> key (the one that shares the decimal point at the bottom of the number keypad) to access the Setup program. In a moment, the main menu of the Award SETUP program will appear on the screen:

Phoenix - AwardBIOS CMOS Setup Utility

►Standard CMOS Features	Load Fail-Safe Defaults
►Advanced BIOS Features	Load Optimized Defaults
►Advanced Chipset Features	Set Supervisor Password
►Integrated Peripherals	Set User Password
►Power Management Setup	Save & Exit Setup
►PnP/PCI Configurations	Exit Without Saving
►PC Health Status	
Esc : Quit F10 : Save & Exit Setup	↑↓→← : Select Item
Time, Date, Hard Disk Type ….	

Setup program initial screen

You may use the cursor the up/down keys to highlight the individual menu items. As you highlight each item, a brief description of the highlighted selection will appear at the bottom of the screen.

4-3. THE STANDARD CMOS FEATURES

Highlight the "STANDARD CMOS FEATURES" and press the <ENTER> key and the screen will display the following table:

Phoenix - AwardBIOS CMOS Setup Utility
Standard CMOS Features

Date (mm:dd:yy)	Thu, Jun 22 2006	Item Help
Time (hh:mm:ss)	13 : 54 : 47	Menu Level ►
► IDE Primary Master	[None]	Change the day, month, year and century
► IDE Primary Slave	[ST3120026AS]	
► IDE Secondary Master	[None]	
► IDE Secondary Slave	[None]	
Drive A	[1.44M, 3.5 in.]	
Video	[EGA/VGA]	
Halt On	[All, But Keyboard]	
Base Memory	640K	
Extended Memory	514048K	
Total Memory	515072K	

↑↓→←: Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7:Optimized Defaults

CMOS Setup screen

In the above Setup Menu, use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.

Date:

< Month >, < Date > and <Year >. Ranges for each value are in the CMOS Setup Screen, and the week-day will skip automatically.

Time:

< Hour >, < Minute >, and < Second >. Use 24 hour clock format, i.e., for PM numbers, add 12 to the hour. For example: 4: 30 P.M. You should enter the time as 16:30:00.

IDE Primary Master / Slave:
IDE Secondary Master / Slave:

The BIOS can automatically detect the specifications and optimal operating mode of almost all IDE hard drives. When you select type AUTO for a hard drive, the BIOS detect its specifications during POST, every time system boots.

If you do not want to select drive type AUTO, other methods of selecting drive type are available:

1. Match the specifications of your installed IDE hard drive(s) with the preprogrammed values for hard drive types 1 through 45.
2. Select USER and enter values into each drive parameter field.
3. Use the IDE HDD AUTO DETECTION function in Setup.

Here is a brief explanation of drive specifications:

Type: The BIOS contains a table of pre-defined drive types. Each defined drive type has a specified number of cylinders, number of heads, write precompensation factor, landing zone, and number of sectors. Drives whose specifications do not accommodate any predefine type are classified as type USER.

- Size: Disk drive capacity (approximate). Note that this size is usually greater than the size of a formatted disk given by a disk-checking program.
- Cyls: number of cylinders.
- Head: number of heads.
- Precomp: write precompensation cylinders.
- Landz: landing zone.
- Sector: number of sectors.
- Mode: Auto, Normal, Large or LBA.

  Auto: The BIOS automatically determines the optimal mode.

  - Normal: Maximum number of cylinders, heads, sectors supported are 1024, 16 and 63.
  - Large: For drives that do not support LBA and have more than 1024 cylinders.

- LBA (Logical Block Addressing): During drive accesses, the IDE controller transforms the data address described by sector, head and cylinder number into a physical block address, significantly improving data transfer rates. For drives greater than 1024 cylinders.

DRIVE A:

Select the type of floppy disk drive installed in your system. The available options are 360KB 5.25in, 1.2KB 5.25in, 720KB 3.5in, 1.44MB 3.5in, 2.88MB 3.5in and None.

VIDEO:

This category selects the type of video adapter used for the primary system monitor. Although secondary monitors are supported, you do not have to select the type in Setup. Available Options are as follows:

EGA/VGA	Enhanced Graphics Adapter/Video Graphics Array. For EGA, VGA, SEGA, SVGA or PGA monitor adapters.
CGA 40	Color Graphics Adapter, power up in 40 column mode.
CGA 80	Color Graphics Adapter, power up in 80 column mode.
MONO	Monochrome adapter, includes high resolution monochrome adapters.

HALT ON:

This category allows user to choose whether the computer will stop if an error is detected during power up. Available options are “All errors”, “No errors”, “All, But keyboard”, “All, But Diskette”, and “All But Disk/Key”.

BASE MEMORY:

Displays the amount of conventional memory detected during boot up.

EXTENDED MEMORY:

Displays the amount of extended memory detected during boot up.

TOTAL MEMORY:

Displays the total memory available in the system.

HARD DISK ATTRIBUTES:

Type	Cylinders	Heads	V-P comp	LZone	Sect	Capacity
1	306	4	128	305	17	10
2	615	4	300	615	17	20
3	615	6	300	615	17	30
4	940	8	512	940	17	62
5	940	6	512	940	17	46
6	615	4	65535	615	17	20
7	642	8	256	511	17	30
8	733	5	65535	733	17	30
9	900	15	65535	901	17	112
10	820	3	65535	820	17	20
11	855	5	65535	855	17	35
12	855	7	65535	855	17	49
13	306	8	128	319	17	20
14	733	7	65535	733	17	42
15	000	0	0000	000	00	00
16	612	4	0000	663	17	20
17	977	5	300	977	17	40
18	977	7	65535	977	17	56
19	1024	7	512	1023	17	59
20	733	5	300	732	17	30
21	733	7	300	732	17	42
22	733	5	300	733	17	30
23	306	4	0000	336	17	10
24	977	5	65535	976	17	40
25	1024	9	65535	1023	17	76
26	1224	7	65535	1223	17	71
27	1224	11	65535	1223	17	111
28	1224	15	65535	1223	17	152
29	1024	8	65535	1023	17	68
30	1024	11	65535	1023	17	93
31	918	11	65535	1023	17	83
32	925	9	65535	926	17	69
33	1024	10	65535	1023	17	85
34	1024	12	65535	1023	17	102
35	1024	13	65535	1023	17	110
36	1024	14	65535	1023	17	119
37	1024	2	65535	1023	17	17
38	1024	16	65535	1023	17	136
39	918	15	65535	1023	17	114
40	820	6	65535	820	17	40
41	1024	5	65535	1023	17	42
42	1024	5	65535	1023	26	65
43	809	6	65535	852	17	40
44	809	6	65535	852	26	61
45	776	8	65335	775	33	100
47			AUTO			

Award Hard Disk Type Table

4-4. THE ADVANCED BIOS FEATURES

Choose the "ADVANCED BIOS FEATURES" in the main menu, the screen shown as below.

Phoenix - AwardBIOS CMOS Setup Utility
Advanced BIOS Features

► CPU Feature	[Press Enter]	Item Help
► Hard Disk Boot Priority	[Press Enter]	
First Boot Device	[Hard Disk]	
Second Boot Device	[Hard Disk]	Menu Level ►
Third Boot Device	[LS120]	
Boot Other Device	[Enabled]	
Security Option	[Setup]	
APIC Mode	[Enabled]	
MPS Version Control For OS	[1.4]	

↑↓→←: Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7:Optimized Defaults

BIOS Features Setup Screen

The "BIOS FEATURES SETUP" allow you to configure your system for basic operation. The user can select the system's boot-up sequence and security.

A brief introduction of each setting is given below.

CPU FEATURE:

The options for these items are found in its sub menu. By pressing the <ENTER> key, you are prompt to enter the sub menu of the detailed options as shown below:

Phoenix – Award CMOS Setup Utility
CPU Feature

Delay Prior to Thermal	[16 Min]	Item Help
Thermal Management	[Thermal Monitor 1]	
X TM2 Bus Ratio	12X	
X TM2 Bus VID	1.404V	Menu Level ►
C1E Function	[Auto]	
Execute Disable Bit	[Enabled]	

↑↓→←:Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

Descriptions on each item above are as follows:

1. **Delay Prior to Thermal**
   The Delay Prior To Thermal BIOS feature controls the activation of the Thermal Monitor's automatic mode. It allows you to determine when the Pentium-M's Thermal Monitor should be activated in automatic mode after the system boots.
2. **Thermal Management**
   The used Thermal Monitor
3. **C1E Function**
   This is enabled to reduce power during idle operation
4. **Execute Disable Bit**
   To select enable or disable the No-Execution Page Protection Technology.

HARD DISK BOOT PRIORITY:

The options for these items are found in its sub menu. By pressing the <ENTER> key, you are prompt to enter the sub menu of the detailed options as shown below:

Phoenix – Award CMOS Setup Utility
Hard Disk Boot Priority

1. Ch0 S. 2. Bootable Add-in Cards	Item Help
	Menu Level ►
	Use<↑> or <↓> to select a device, then press <+> to move it up, or <-> to move it down the list. Press <ESC> to exit this menu.
↑↓→←:Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5: Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults	

Select Hard Disk Boot Device Priority

FIRST/SECOND/ THIRD/ OTHER BOOT DEVICE:

The BIOS attempt to load the operating system from the devices in the sequence selected in these items.

SECURITY OPTION:

This category allows you to limit access to the system and Setup, or just to Setup.

System	The system will not boot and access to Setup will be denied if the correct password is not entered at the prompt.
Setup	The system will boot, but access to Setup will be denied if the correct password is not entered at the prompt.

🔔 To disable security, select PASSWORD SETTING at Main Menu and then you will be asked to enter password. Do not type anything and just press <Enter>, it will disable security. Once the security is disabled, the system will boot and you can enter Setup freely.

APIC MODE:

To Enable Advanced Programmable Interrupt Controller

MPS VERSION CONTROL FOR OS:

This option is only valid for multiprocessor motherboards as it specifies the version of the Multiprocessor Specification (MPS) that the motherboard will use. The MPS is a specification by which PC manufacturers design and build Intel architecture systems with two or more processors.

4-5. ADVANCED CHIPSET FEATURES

Choose the "ADVANCED CHIPSET FEATURES" from the main menu, the screen shown as below.

Phoenix - AwardBIOS CMOS Setup Utility
Advanced Chipset Features

DRAM Timing Selectable	[By SPD]	Item Help
X CAS Latency Time	[Auto]	
X DRAM RAS# to CAS# Delay	[Auto]	
X DRAM RAS# Precharge	[Auto]	Menu Level ►
X Precharge dealy (tRAS)	[Auto]	
System Memory Frequency	[Auto]	
System BIOS Cacheable	[Enabled]	
Video BIOS Cacheable	[Disabled]	
Memory Hole At 15M-16M	[Disabled]	
** VGA Setting **		
PEG/Onchip VGA Control	[Auto]	
On-Chip Frame Buffer Size	[8MB]	
DVMT Mode	[DVMT]	
DVMT/ FIXED Memory Size	[128 MB]	
Boot Display	[CRT]	
Panel Type	[640x480 18-bit]	
TV Format	[Auto]	
PCI SERR# NMI	[Disabled]	

↑↓→←: Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7:Optimized Defaults

Chipset Features Setup Screen

This parameter allows you to configure the system based on the specific features of the installed chipset. The chipset manages bus speed and access to system memory resources, such as DRAM and the external cache.

It also coordinates communications between conventional ISA bus and the PCI bus. It must be stated that these items should never need to be altered. The default settings have been chosen because they provide the best operating conditions for the system. The only time you might consider making any changes would be if you discovered that data was being lost while using your system.

DRAM TIMEING SELECTABLE:

The value in this field depends on performance parameters of the installed memory chips (DRAM). Do not change the value from the factory setting unless you install new memory that has a different performance rating than the original DRAMs.

CAS LATENCY TIME:

When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing.

DRAM RAS# TO CAS# DELAY:

This item let you insert a timing delay between the CAS and RAS strobe signals, used when DRAM is written to, read from, or refreshed. Fast gives faster performance; and Slow gives more stable performance. This field applies only when synchronous DRAM is installed in the system. The choices are 2 and 3.

DRAM RAS# PRECHARGE TIME:

If an insufficient number of cycles is allowed for the RAS to accumulate its charge before DRAM refresh, the refresh may be incomplete and the DRAM may fail to retain data. Fast gives faster performance; and Slow gives more stable performance. This field applies only when synchronous DRAM is installed in the system. The choices are 2 & 3.

PRECHARGE DEALY (tRAS):

Precharge Delay This setting controls the precharge delay, which determines the timing delay for DRAM precharge

System Memory Frequency:

Allow to choose different frequency of memory module.

SYSTEM BIOS CACHEABLE:

Selecting Enabled allows caching of the system BIOS ROM at F0000h-FFFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

VIDEO BIOS CACHEABLE:

Select Enabled allows caching of the video BIOS, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

MEMORY HOLE AT 15-16M:

You can reserve this area of system memory for ISA adapter ROM. When this area is reserved, it cannot be cached. The user information of peripherals that need to use this area of system memory usually discusses their memory requirements

PEG/ONCHIP VGA CONTROL:

To select the PCI-Express Graphics or onchip VGA Graphics.

ON-CHIP FRAME BUFFER SIZE:

The On-Chip Frame Buffer Size can be set as 32MB. This memory is shared with the system memory.

DVMT MODE:

Intel Dynamic Video Memory Technology Mode.

DVMT/FIXED MEMORY SIZE:

DVMT Memory Size Select.

BOOT DISPLAY:

To select the boot-up display type.

Panel Type:

This field allows user to decide the LVDS panel resolution

TV FORMAT:

To select TV-Format type

PCI SERR# NMI:

To Enable/Disable the PCI SERR# interrupt

4-6. INTEGRATED PERIPHERALS

Choose "INTEGRATED PERIPHERALS" from the main setup menu, a display will be shown on screen as below:

Phoenix - AwardBIOS CMOS Setup Utility
Integrated Peripherals

▶ OnChip IDE Device	[Press Enter]	Item Help
▶ Onboard Device	[Press Enter]	
▶ SuperIO Device	[Press Enter]	Menu Level ▶
Onboard Serial Port 3	[3E8/IRQ10]	
Onboard Serial Port 4	[2E8/IRQ11]	
WatchDog Support	[Disabled]	

↑↓→←: Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7:Optimized Defaults

Integrated Peripherals Setup Screen

By moving the cursor to the desired selection and by pressing the <F1> key, the all options for the desired selection will be displayed for choice.

If bios setup menu item supports USB device boot, it will cause Win9x detects the same storages twice when the system is rebooted, and USB HDD will fail. Note: this cause just happen under Win9x, the phenomenon is a limitation.

ONCHIP IDE DEVICE:

The options for these items are found in its sub menu. By pressing the <ENTER> key, you are prompt to enter the sub menu of the detailed options as shown below:

Phoenix – Award CMOS Setup Utility
OnChip IDE Device

IDE HDD Block Mode	[Enabled]	Item Help
IDE DMA transfer access	[Enabled]	
OnChip Primary PCI IDE	[Enabled]	Menu Level ►
IDE Primary Master PIO	[Auto]	If your IDE hard drive supports block mode select Enabled for automatic detection of the optional number of block read/writes per sector the drive can support.
IDE Primary Slave PIO	[Auto]	
IDE Primary Master UDMA	[Auto]	
IDE Primary Slave UDMA	[Auto]	
OnChip Secondary PCI IDE	[Enabled]	
IDE Secondary Master PIO	[Auto]	
IDE Secondary Slave PIO	[Auto]	
IDE Secondary Master UDMA	[Auto]	
IDE Secondary Slave UDMA	[Auto]	
*** On-Chip Serial ATA Setting ***		
SATA Mode	[IDE]	
On-Chip Serial ATA	[Auto]	
X PATA IDE Mode	Primary	
SATA Port	P1, P3 is Secondary	

↑↓→←:Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

Descriptions on each item above are as follows:

1. **IDE HDD Block Mode**
   Block mode is also called block transfer, multiple commands, or multiple sector read/write. If your IDE hard drive supports block mode (most new drives do), select Enabled for automatic detection of the optimal number of block read/writes per sector the drive can support
2. **IDE DMA Transfer Access**
   To Enable/Disable the IDE DMA transfer access
3. **OnChip Primary PCI IDE**
   The integrated peripheral controller contains an IDE interface with support for two IDE channels. Select Enabled to activate each channel separately.

4. **Primary Master/Slave PIO**
   Secondary Master/Slave PIO
   The four IDE PIO fields allow you to set a PIO mode (0-4) for each of the four IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device.
5. **Primary Master/Slave UDMA**
   Secondary Master/Slave UDMA
   Ultra DMA/33 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver (Windows 95 OSR2 or a third-party IDE bus master driver). If you hard drive and your system software both support Ultra DMA/33, select Auto to enable BIOS support.
6. **SATA Mode:**
   Set the Serial ATA configuration. When set in Advanced Host Controller Interface (AHCI) or RAID mode, the SATA controller is set to Native mode. Configuration options: [IDE] [RAID] [AHCI]
7. **On-Chip Serial ATA:**
   [Disabled]: Disabled SATA Controller.
   [Auto]: Auto arrange by BIOS.
   [Combined Mode]: PATA and SATA are combined. Max.of 2 IDE drives in each channel.
   [Enhanced Mode]: Enable both SATA and PATA. Max.of 6 IDE drives are supported.
   [SATA Only]: SATA is operating in legacy mode.
8. **PATA IDE Mode**
   To select PATA IDE Mode sequence
9. **SATA Port**
   According PATA IDE Mode to determine SATA sequence

ONBOARD DEVICE:

The options for these items are found in its sub menu. By pressing the <ENTER> key, you are prompt to enter the sub menu of the detailed options as shown below:

Phoenix – Award CMOS Setup Utility
Onboard Device

USB Controller	[Enabled]	Item Help
USB 2.0 Controller	[Enabled]	
USB Keyboard Support	[Enabled]	Menu Level ►
↑↓→←:Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5: Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

Descriptions on each item above are as follows:

1. **USB Controller**
   This should be enabled if your system has a USB installed on the system board and you want to use it. Even when so equipped, if you add a higher performance controller, you will need to disable this feature.
2. **USB 2.0 Controller**
   Enable the USB 2.0 controller
3. **USB Keyboard Support**
   Select Enabled if your system contains a Universal Serial Bus (USB) controller and you have a USB keyboard.

SUPER IO DEVICE:

The options for these items are found in its sub menu. By pressing the <ENTER> key, you are prompt to enter the sub menu of the detailed options as shown below:

Phoenix – Award CMOS Setup Utility
SuperIO Device

Onboard FDC Controller	[Enabled]	Item Help
Onboard Serial Port 1	[3F8/IRQ4]	
Onboard Serial Port 2	[2F8/IRQ3]	
UART Mode Select	[Normal]	Menu Level ►
TxD, RxD Polarity Active	[Lo, Hi]	
Onboard Parallel Port	[378/IRQ7]	
Parallel Port Mode	[SPP]	
X ECP Mode Use DMA	3	

↑↓→←:Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

Descriptions on each item above are as follows:

1. **Onboard FDC Controller**
   Select Enabled if the system has a floppy disk controller (FDC) installed on the system board and you wish to use it. If you install and-in FDC or the system has no floppy drive, select Disabled.
2. **Onboard Serial Port 1/2**
   Select an address and corresponding interrupt for the first and second serial ports.
3. **UART Mode Select**
   This item allows you to select UART mode.
4. **TxD, RxD Polarity Active**
   This item allows you to determine the active of RxD, TxD
5. **Onboard Parallel Port**
   This item allows you to determine access onboard parallel port controller with which I/O address.
6. **Parallel Port Mode**
   Select an operating mode for the onboard parallel (printer) port. Select *Normal, Compatible,* or *SPP* unless you are certain your hardware and software both support one of the other available modes.
7. **ECP Mode Use DMA**
   Select a DMA channel for the parallel port for use during ECP mode.

ONBOARD SERIAL PORT 3:
ONBOARD SERIAL PORT 4:

Select a logical COM port name and matching address for the third and forth serial ports. Select an address and corresponding interrupt for third and forth serial port.

WATCHDOG SUPPORT:

To select watch-dog times.

4-7. POWER MANAGEMENT SETUP

Choose "POWER MANAGEMENT SETUP" option on the main menu, a display will be shown on screen as below :

Phoenix - AwardBIOS CMOS Setup Utility
Power Management Setup

ACPI Function	[Enabled]	Item Help
Video Off In Suspend	[Yes]	
Soft-Off by PWR-BTTN	[Instant-Off]	
PWRON After PWR-Fail	[Off]	
		Menu Level ►

↑↓→←: Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7:Optimized Defaults

Power Management Setup Screen

The "Power Management Setup" allows the user to configure the system to the most effectively save energy while operating in a manner consistent with your own style of computer use.

ACPI FUNCTION:

Users are allowed to enable or disable the Advanced Configuration and Power Management (ACPI).

SOFT-OFF BY PWR-BTTN:

Pressing the power button for more than 4 seconds forces the system to enter the Soft-Off state when the system has "hung". The choices are Delay 4 Sec and Instant-Off.

PWRON AFTER PWR-FAIL:

This item allows you to select if you want to power on the system after power failure. The choice: Off and On

4-8. PNP/PCI CONFIGURATION

Choose "PNP/PCI CONFIGURATION" from the main menu, a display will be shown on screen as below:

Phoenix - AwardBIOS CMOS Setup Utility
PnP/PCI Configurations

Init Display First	[PCI Slot]	Item Help
Reset Configuration Data	[Disabled]	
Resources Controlled By	[Auto (ESCD)]	Menu Level ►
x IRQ Resources	Press Enter	

↑↓→←: Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7:Optimized Defaults

PNP/PCI Configuration Setup Screen

The PNP/PCI Configuration Setup describes how to configure PCI bus system. PCI, also known as Personal Computer Interconnect, is a system, which allows I/O devices to operate at speeds nearing the speed of the CPU itself uses when communicating with its own special components.

This section covers technical items, which is strongly recommended for experienced users only.

INIT DISPLAY FIRST:

This item allows you to decide to active whether PCI Slot or on-chip VGA first.

RESET CONFIGURATION DATA:

Normally, you leave this field Disabled. Select Enabled to reset Extended System Configuration Data (ESCD) when you exit Setup if you have installed a new add-on and the system configuration has caused such a serious conflict that the operating system cannot boot.

RESOURCE CONTROLLED BY:

The Award Plug and Play Bios can automatically configure all of the booth and Plug and Play-compatible devices. However, this capability means absolutely nothing unless you are using a Plug and Play operating system such as Windows 95. By choosing "manual", you are allowed to configure the *IRQ Resources and DMA Resources*.

IRQ RESOURCES:

The options for these items are found in its sub menu. By pressing the <ENTER> key, you are prompt to enter the sub menu of the detailed options as shown below:

Phoenix – Award CMOS Setup Utility
IRQ Resources

IRQ-3 assigned to	[PCI Device]	Item Help
IRQ-4 assigned to	[PCI Device]	
IRQ-5 assigned to	[PCI Device]	
IRQ-7 assigned to	[PCI Device]	Menu Level ►
IRQ-9 assigned to	[PCI Device]	
IRQ-10 assigned to	[PCI Device]	Legacy ISA for devices compliant with the original PC AT bus specification, PCI/ISA PnP for devices compliant with the Plug and Play standard whether designed for PCI or ISA bus architecture
IRQ-11 assigned to	[PCI Device]	
IRQ-12 assigned to	[PCI Device]	
IRQ-14 assigned to	[PCI Device]	
IRQ-15 assigned to	[PCI Device]	

↑↓→←:Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

Descriptions on each item above are as follows:

1. **IRQ-n Assigned to:**

   You may assign each system interrupt a type, depending on the type of device using the interrupt.

4-9. PC HEALTH STATUS

Choose "PC HEALTH STATUS" from the main menu, a display will be shown on screen as below:

Phoenix - AwardBIOS CMOS Setup Utility
PC Health Status

Shutdown Temperature	[Disabled]	Item Help
Current CPU Temerature	48 C	
Vcore	1.23V	Menu Level ►
5V	5.01V	
12V	12.22V	
Fan1 Speed	0 RPM	
Fan2 Speed	0 RPM	

↑↓→←: Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7:Optimized Defaults

PC Health Status Setup Screen

The PC Health Status Setup allows you to select whether to choose between monitoring or to ignore the hardware monitoring function of your system.

SHUTDOWN TEMPERATURE:

This item allows you to set up the CPU shutdown Temperature.

CURRENT CPU TEMPERATURE:

This item shows you the current CPU temperature.

VCORE:

This item shows you the current system voltage.

5V / 12V :

Show you the voltage of5V/12V.

FAN1/FAN2 SPEED:

This item shows you the current CPU/ SYSTEM FAN speed.

4-10. LOAD FAIL-SAFE DEFAULTS

By pressing the <ENTER> key on this item, you get a confirmation dialog box with a message similar to the following:

```
Load Fail-Safe Defaults ( Y/N ) ? N
```

To use the BIOS default values, change the prompt to "Y" and press the <Enter > key. CMOS is loaded automatically when you power up the system.

4-11. LOAD OPTIMIZED DEFAULTS

When you press <Enter> on this category, you get a confirmation dialog box with a message similar to the following:

```
Load Optimized Defaults ( Y/N ) ? N
```

Pressing "Y" loads the default values that are factory setting for optimal performance system operations.

4-12. PASSWORD SETTING

User is allowed to set either supervisor or user password, or both of them. The difference is that the supervisor password can enter and change the options of the setup menus while the user password can enter only but do not have the authority to change the options of the setup menus.

TO SET A PASSWORD

When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

Enter Password:

Type the password up to eight characters in length, and press < Enter >. The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press the < Enter > key. You may also press < Esc > to abort the selection and not enter a password.

🔔 User should bear in mind that when a password is set, you will be asked to enter the password everything you enter CMOS setup Menu.

TO DISABLE THE PASSWORD

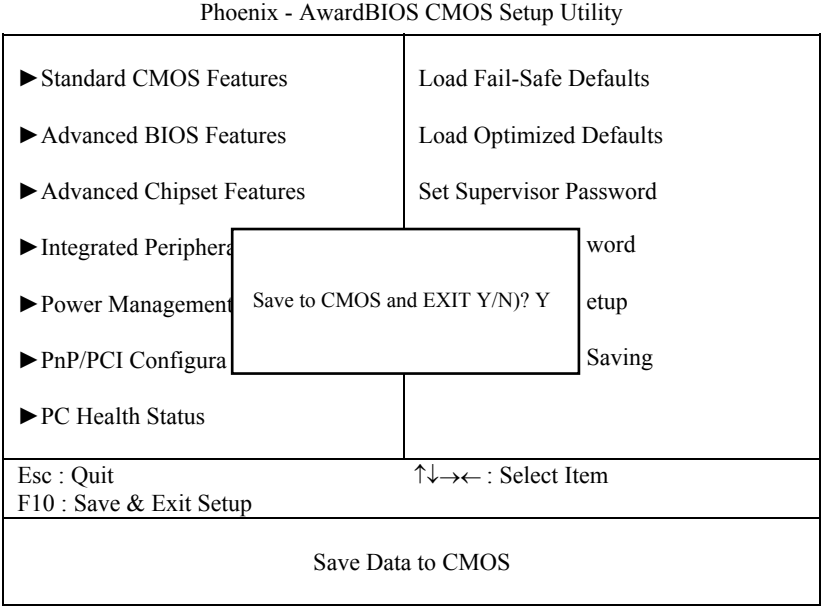
To disable the password, select this function (do not enter any key when you are prompt to enter a password), and press the <Enter> key and a message will appear at the center of the screen:

PASSWORD DISABLED!!! Press any key to continue...

Press the < Enter > key again and the password will be disabled. Once the password is disabled, you can enter Setup freely.

4-13. SAVE & EXIT SETUP

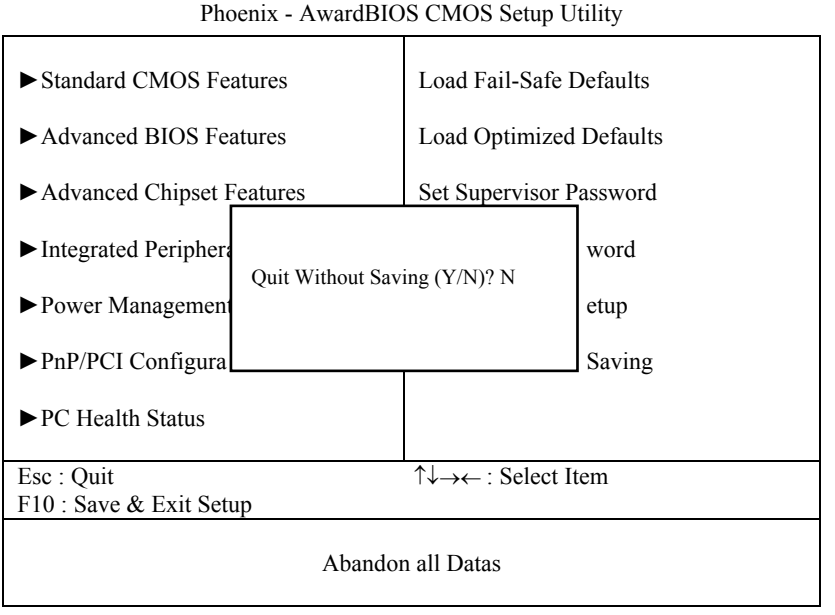
After you have completed adjusting all the settings as required, you must remember to save these setting into the CMOS RAM. To save the settings, select "SAVE & EXIT SETUP" and press <Enter>, a display will be shown as follows:



When you confirm that you wish to save the settings, your system will be automatically restarted and the changes you have made will be implemented. You may always call up the setup program at any time to adjust any of the individual items by pressing the <Del> key during boot up.

4-14. EXIT WITHOUT SAVING

If you wish to cancel any changes you have made, you may select the "EXIT WITHOUT SAVING" and the original setting stored in the CMOS will be retained. The screen will be shown as below:



EXPANSION BUS

APPENDIX

A

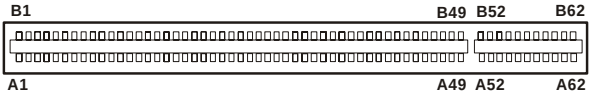
This appendix indicates the pin assignments.

Section includes:

- PCI BUS Pin Assignment

PCI BUS PIN ASSIGNMENT

Like ISA-BUS connector, the PCI-BUS edge connector is also divided into two sets: one consists of 98-pin; the other consists of 22-pin.
The pin assignments are as follows :



B		A		B		A	
PIN	ASSIGNMENT	PIN	ASSIGNMENT	PIN	ASSIGNMENT	PIN	ASSIGNMENT
B1	-12V	A1	TRST#	B31	+3.3V	A31	AD18
B2	TCK	A2	+12V	B32	AD17	A32	AD16
B3	GND	A3	TMS	B33	C/BE2#	A33	+3.3V
B4	TDO	A4	TDI	B34	GND	A34	FRAME#
B5	+5V	A5	+5V	B35	IRDY#	A35	GND
B6	+5V	A6	INTA#	B36	+3.3V	A36	TRDY#
B7	INTB#	A7	INTC#	B37	DEVSEL#	A37	GND
B8	INTD#	A8	+5V	B38	GND	A38	STOP#
B9	REQ3#	A9	CLKC	B39	LOCK#	A39	+3.3V
B10	REQ1#	A10	+5V(I/O)	B40	PERR#	A40	SDONE
B11	GNT3#	A11	CLKD	B41	+3.3V	A41	SB0#
B12	GND	A12	GND	B42	SERR#	A42	GND
B13	GND	A13	GND	B43	+3.3V	A43	PAR
B14	CLKA	A14	GNT1#	B44	C/BE1#	A44	AD15
B15	GND	A15	RST#	B45	AD14	A45	+3.3V
B16	CLKB	A16	+5V(I/O)	B46	GND	A46	AD13
B17	GND	A17	GNT0#	B47	AD12	A47	AD11
B18	REQ0#	A18	GND	B48	AD10	A48	GND
B19	+5V(I/O)	A19	REQ2#	B49	GND	A49	AD09
B20	AD31	A20	AD30	B52	AD08	A52	C/BE0#
B21	AD29	A21	+3.3V	B53	AD07	A53	+3.3V
B22	GND	A22	AD28	B54	+3.3V	A54	AD06
B23	AD27	A23	AD26	B55	AD05	A55	AD04
B24	AD25	A24	GND	B56	AD03	A56	GND
B25	+3.3V	A25	AD24	B57	GND	A57	AD02
B26	C/BE3#	A26	GNT2#	B58	AD01	A58	AD00
B27	AD23	A27	+3.3V	B59	+5V(I/O)	A59	+5V(I/O)
B28	GND	A28	AD22	B60	ACK64#	A60	REQ64#
B29	AD21	A29	AD20	B61	+5V	A61	+5V
B30	AD19	A30	GND	B62	+5V	A62	+5V

TECHNICAL SUMMARY

APPENDIX

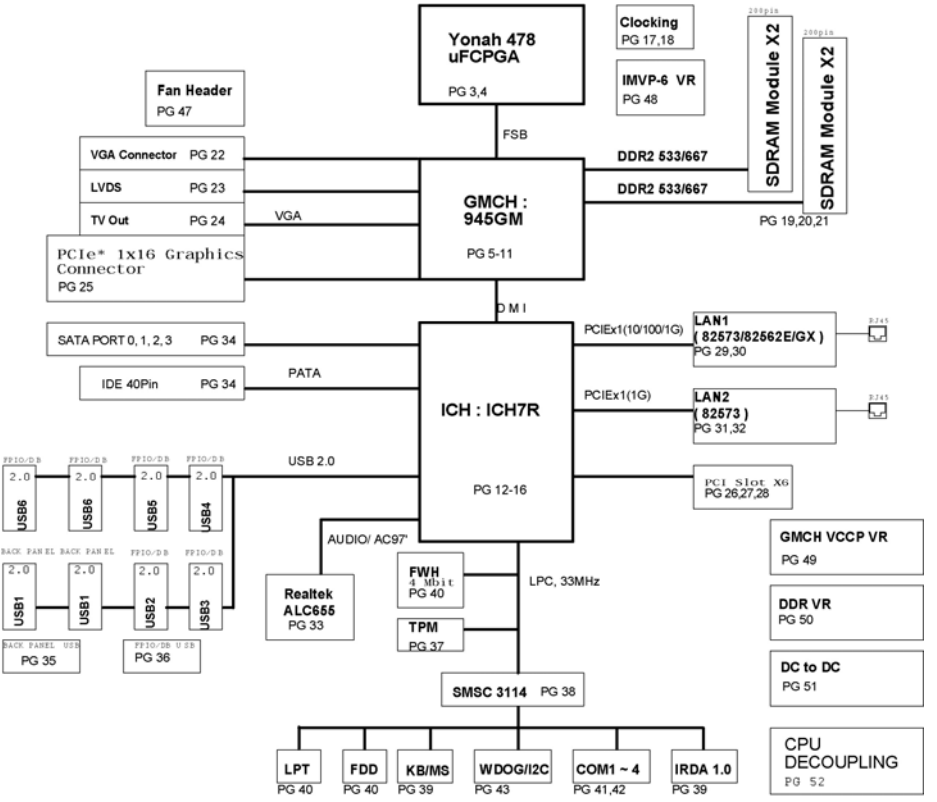
B

This section introduce you the maps concisely.

Section includes:

- Block Diagram
- Interrupt Map
- RTC & CMOS RAM Map
- Timer & DMA Channels Map
- I / O & Memory Map

BLOCK DIAGRAM



INTERRUPT MAP

IRQ	ASSIGNMENT
0	System TIMER
1	Keyboard
2	Cascade
3	Serial port 2
4	Serial port 1
5	Available
6	Floppy
7	Parallel port 1
8	RTC clock
9	Available
10	Available
11	Available
12	PS/2 Mouse
13	Math coprocessor
14	IDE1
15	IDE2

RTC & CMOS RAM MAP

CODE	ASSIGNMENT
00	Seconds
01	Second alarm
02	Minutes
03	Minutes alarm
04	Hours
05	Hours alarm
06	Day of week
07	Day of month
08	Month
09	Year
0A	Status register A
0B	Status register B
0C	Status register C
0D	Status register D
0E	Diagnostic status byte
0F	Shutdown byte
10	Floppy Disk drive type byte
11	Reserve
12	Hard Disk type byte
13	Reserve
14	Equipment byte
15	Base memory low byte
16	Base memory high byte
17	Extension memory low byte
18	Extension memory high byte
30	Reserved for extension memory low byte
31	Reserved for extension memory high byte
32	Date Century byte
33	Information Flag
34-3F	Reserve
40-7f	Reserved for Chipset Setting Data

TIMER & DMA CHANNELS MAP

Timer Channel Map :

Timer Channel	Assignment
0	System timer interrupt
1	DRAM Refresh request
2	Speaker tone generator

DMA Channel Map :

DMA Channel	Assignment
0	Available
1	Available
2	Floppy
3	Available
4	Cascade
5	Available
6	Available
7	Available

I/O & MEMORY MAP

Memory Map :

MEMORY MAP	ASSIGNMENT
0000000-009FFFF	System memory used by DOS and application
00A0000-00BFFFF	Display buffer memory for VGA/ EGA / CGA / MONOCHROME adapter
00C0000-00DFFFF	Reserved for I/O device BIOS ROM or RAM buffer.
00E0000-00EFFFF	Reserved for PCI device ROM
00F0000-00FFFFF	System BIOS ROM
0100000-FFFFFFF	System extension memory

I/O Map :

I/O MAP	ASSIGNMENT
000-01F	DMA controller (Master)
020-021	Interrupt controller (Master)
022-023	Chipset controller registers I/O ports.
040-05F	Timer control regsiters.
060-06F	Keyboard interface controller (8042)
070-07F	RTC ports & CMOS I/O ports
080-09F	DMA register
0A0-0BF	Interrupt controller (Slave)
0C0-0DF	DMA controller (Slave)
0F0-0FF	Math coprocessor
1F0-1F8	Hard Disk controller
278-27F	Parallel port-2
2B0-2DF	Graphics adapter controller
2F8-2FF	Serial port-2
360-36F	Net work ports
378-37F	Parallel port-1
3B0-3BF	Monochrome & Printer adapter
3C0-3CF	EGA adapter
3D0-3DF	CGA adapter
3F0-3F7	Floppy disk controller
3F8-3FF	Serial port-1